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Electrochemical synthesis of diphosphonium salts, their reactivity and role in organic electrosynthesis

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Abstract

Diphosphonium salts (X3P+ - +PX3) 2Y- (where X = R or R2N, Y = ClO4 or BF4) were electrochemically synthesized. The reactions between diphosphonium salts and various nucleophiles were studied. The mechanism of quasiphosphonium formation in electrochemical conditions was established by means of competitive electrochemical oxidation of tripropylphosphine in the presence of excess toluene and water. The data obtained were explained based on the supposition about the radical nature of organophosphorus radical-cations in studied reactions. © 1997 Published by Elsevier Science Ltd.

Keywords

Dodecaalkylhexaamidodiphosphonium diperchlorate, Electrochemical oxidation, Formation of quasiphosphonium, Hexaalkyldiphosphonium salts, Radical-cation